PHYSICAL TRAINING FOR MEN

BY

E.J. HARRISON (JUDO 4TH DAN)

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E. J. HARRISON
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ILLUSTRATED WITH LINE DRAWINGS
AND HALF-TONE PLATES

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PREFACE

PROVIDED he is free from organic trouble, no man worthy of the name has any excuse if he complains of feeling physically unfit. It is a duty to himself and to the nation to see that the physical and mental equipment of his body are always in perfect condition. Physical training, if followed persistently, leads to a healthy and muscular physical state, which in turn makes for a healthy mind. It means that the average man can do his daily job efficiently. It means good temper and a joyous outlook on life, and in the world of commerce it means promotion or advancement.

In the field of sport it brings successful results to the young man who is keen on playing football, to the older man well past the middle-aged state of life, who is still enthusiastic in the playing of a game of cricket or a round of golf.

The physical training exercises in this book will make the quest of this sense of well-being a pleasure and not a task.

CONTENTS

PART		PAGE
I.	A Sound Mind and a Sound Body—Vital Necessity for Proper Elimination of Waste Matter—Selected Exercises for promoting Process ..	9
II.	Exercises Necessary for Attainment of Full Development and Great Strength	45
III.	Weight-Lifting	69

PART I

A Sound Mind and a Sound Body — Vital Necessity for Proper Elimination of Waste Matter —Selected Exercises for promoting Process

WHAT does a man desire? For his brain and for his body? We are not likely to find many dissentients if we answer, Health, Development, and Strength.

Then how to achieve these aims, in particular relation, for the time being, to the body? Here again, the reply in brief is: By thorough and perfect elimination, complete use of the entire muscular system, and certain special intensive exercises.

For one man that suffers from abuse of the muscles by over-exertion—if there be any such men—there are millions suffering from their disuse. And we use the word suffering advisedly.

A man may be in a chronic state of ill health due to lack of exercise, malassimilation, and general lassitude, and yet so used to his condition as to accept it as a state of normal health. *He is ill only*

when he gets worse. He never compares his condition with that of bounding vitality and virility because either he has not known that standard of comparison or he has forgotten it. Were he told he was suffering he would deny it. But let a really fit man feel as he does for an hour, and the suffering would be pronounced.

For our present purpose we take man to include all males from eighteen years onwards.

While we have very fine athletes in this country, we are lacking, comparatively speaking, in brawn. Endurance we have, but sheer strength coupled with lightning speed is more rare than it need be.

First of all—health. Given sound organs, e.g. heart, lungs, kidneys, etc., before we can begin to build muscle we must ensure proper elimination.

Speaking generally, three good meals a day eaten with gusto but without greed will agree with a man if he sees to it that the waste material is fully and completely evacuated. For this purpose he must acquire strong abdominal muscles, and the acquisition of these entails exercises that give the large intestine the massage and movement necessary for its proper working, while the small intestine, the liver, the kidneys, and the entire digestive system are by these same exercises toned up and invigorated.

Although it is not the object of a text-book of this nature to usurp the functions of a medical treatise, and the would-be Sandows and Samsons among our readers may feel inclined to jib at any delay in coming to the point, yet our own deep-rooted conviction that constipation is one of the root causes of the majority of the physical ills which beset modern life must be our justification for dwelling a little upon this phase of the subject. Moreover, the removal of constipation is so vital a condition precedent to any honest system of physical training and muscle building that no book on the subject could claim to be complete without the inclusion of a few general hints on the simplest methods of facilitating proper elimination. In England the comparative prevalence of constipation, when sheer physical laziness is not the primary cause, may to a very large extent be attributed to deficiencies of the average British dietary. Too often in England it is lacking in the necessary proportion of oils and fats. In cases of ill health, certainly in sickness, the importance of diet is unquestionable, and in such cases its regulation is a matter for a medical man, and one who is afforded an opportunity of studying his patient's individual response to different foods. It is dangerous to generalise from the particular, as most of us are tempted to do, and

we know of no adage more true than that one man's meat is another man's poison.

A man who is in ordinary health to begin with will find, if he works hard physically on the lines laid down in this little treatise, and if he allows his appetite to choose rather than his greed to compel, that he can safely eat anything he feels like eating. On the other hand, if he suffers from any tendency towards constipation, he will assuredly be well advised to eat not more than one meat meal a day, and to include in his daily menu plenty of fresh fruit, salads and green vegetables. With the advance of our so-called "civilisation," there has been a remorseless supersession of "natural" raw and hard foods, consumed in comparative proximity to the source, by soft, artificial, over-cooked preparations, which afford no proper exercise for the teeth and jaws. One of the deplorable results of this "evolution" has been very marked dental deterioration and insufficient development of the lower jaw. Teeth and jaws, like every other part of the body, require regular exercise. Theoretically this truism is known to the majority, but we make bold to say that comparatively few heads of families are anything like so careful in practice as they should be in seeing that their children observe elementary rules of correct feeding. Thus to counteract the

negative effect of the matutinal porridge, itself one of the softest of foods, of perhaps somewhat overrated value, it is quite essential that the child and the adult should chew something hard with the subsequent "bacon and eggs" dish, say buttered toast, while the fabled "apple a day" has also much to recommend it as a cleansing and strengthening food for the teeth. There are a few other simple rules of diet which common sense dictates. Here are some of them:

1. Drink plenty of water, three and a half hours after or one hour before a meal. The majority of people do not drink anything like sufficient water during the day.

2. Do not exercise vigorously within three hours after a substantial meal, and after exercising rest, if possible, or at all events take things easily for one hour before eating substantially. With a meal like breakfast more latitude is permissible. For one thing, it is usually a lighter meal. As an aid to the removal of constipation, we have always found it an excellent plan to drink a glass or two of hot or tepid water immediately before our shave and bath every morning. Reference is made to this healthful practice elsewhere in these pages, but it has a definite place at this stage, when we are dealing with the subject of proper elimination. If fifteen or thirty

minutes' vigorous physical exercise, on the lines laid down in these pages, follow this practice, we shall be astonished if even the most refractory cases do not speedily yield to treatment.

An important point in connexion with regular and adequate elimination not always appreciated is that as a man grows older the greater as a rule the quantity of waste matter accumulated in proportion to the volume of food consumed, and the greater the consequent need for unhindered discharge at least twice, but, better still, three or four times daily. A series of post-mortem examinations conducted some years ago by a distinguished American surgeon afforded very strong proof that the root of the evil of constipation may be traced to a congested colon which has never been thoroughly cleared and has been responsible for the gradual poisoning of the system of the victim who all along has blissfully believed that he was free from constipation because he has been having what that wise old philosopher Locke, in his classic work on Education, has euphemistically designated a "stoole" once a day. If, then, we are right in regarding properly graduated and co-ordinated physical exercises as one of the most valuable aids to the conquest of constipation—that curse of modern "civilisation"—the necessity

for such exercises, so far from diminishing with the years, unquestionably increases, so that the growing inclination to bodily inactivity which commonly afflicts members of the older generation should be firmly resisted at all costs. Admittedly it does require a genuine effort to get out of a warm bed before daylight on a cold winter's morning in order to allow sufficient time for an unhurried toilet and the fifteen minutes' hard physical exercise which we deem indispensable to the acquisition and/or retention of vigorous health and the guarantee of an uncongested colon; yet the results accruing from this practice render it well worth while, and the healthful habit once formed becomes considerably easier of observance, until in the long run one's reactions are not only those of purely physical, but also mental well being. Development of will power proceeds concurrently with that of the bodily muscles. Recognition of this important principle underlies the invariable custom followed in the ju-jitsu or judo schools of present-day Japan, that of practising the art every morning from about four to seven o'clock for a month during the coldest season of the year, and from about two to four or five o'clock every afternoon for the same period during the hottest season of the year. If, in addition,

the matutinal exercises are followed by a douche with cold water over the back of the neck, one will go down to breakfast with a tremendous appetite and can afterwards face the coldest weather out of doors with comparative indifference and far less fear of catching cold than the mental and moral rather than physical weaklings who cling to their beds until the last moment, rush their toilet, bolt a hasty and ill masticated breakfast, and then dash off to catch their train or 'bus.

In view of the stress that has been laid upon the importance of fighting constipation and the rôle played in this respect by strong abdominal muscles, we cannot do better than give precedence to a brief series of abdominal exercises as having the most direct bearing upon this particular phase of our "thesis."

EXERCISE No. 1

(Fig. 1). Lying on back, draw up each knee alternately, pulling knee into chest with both hands.

The "Rocker"

Forward Bend with Straight Knees

At first complete the movement with each leg before bringing the other leg into play. Begin with

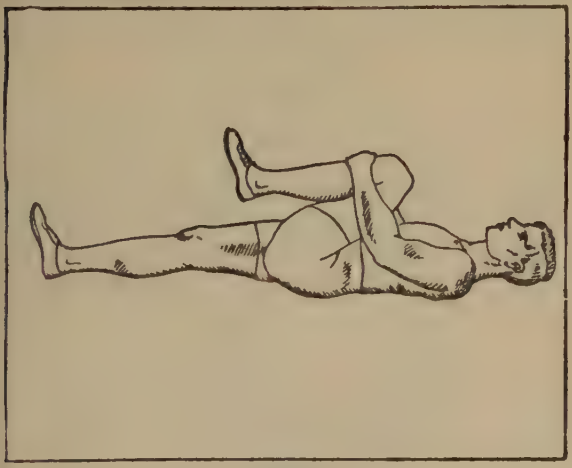


FIG. 1

three movements for each leg, work up gradually to twenty movements for each leg, and when those can be done without undue fatigue, work both legs simultaneously, drawing up the knee of one while extending the other. Begin with three movements and work up gradually to twenty movements. In these movements the principal muscles employed are the lower abdominals.

EXERCISE No. 2

(Fig. 2). Lying on back, draw both knees in to chest, assisting the pulling movement with the

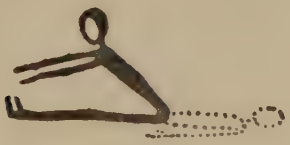
hands. Straighten the legs upwards and lower slowly to the floor. Begin with three movements, working up gradually to twenty. The principal

FIG. 2

muscles employed in these movements are the upper and lower abdominals.

EXERCISE No. 3

(Fig. 3). Lying on back, raise body to sitting position, keeping legs straight; bend forward, keeping back as straight as possible, and touch toes. Resume lying position. Repeat three times, working



gradually up to ten. Care should be taken to perform these movements slowly and without jerking. At the outset, the novice may experience some difficulty in keeping his heels against the floor as he sits up from the supine position and as he lowers himself again to the latter, but as the relevant muscles gain in strength he will be able to do this with comparative ease. The exercise may be varied and intensified by rising from the supine position

with folded arms or, most difficult of all, with the hands clasped behind the head. It is to be feared that only the comparatively few "elect" will ever succeed in achieving the last named feat with any-

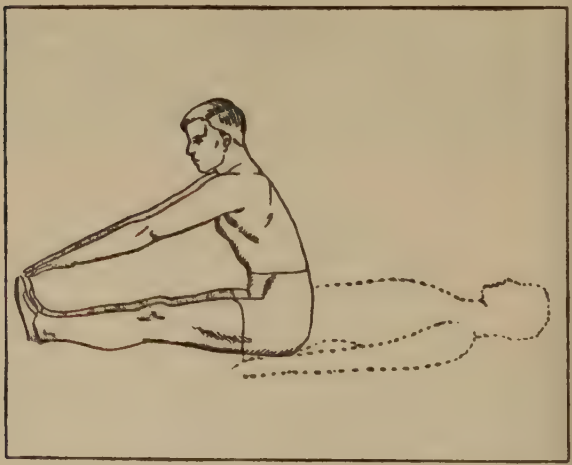


FIG. 3

thing approaching general elegance. The principal muscles engaged in these movements are the upper abdominals.

EXERCISE No. 4

(Fig. 4). Lying on back, raise both legs simultaneously, knees straight, to right angles to the

body, and lower slowly. Repeat three times, working gradually up to twenty. This exercise may

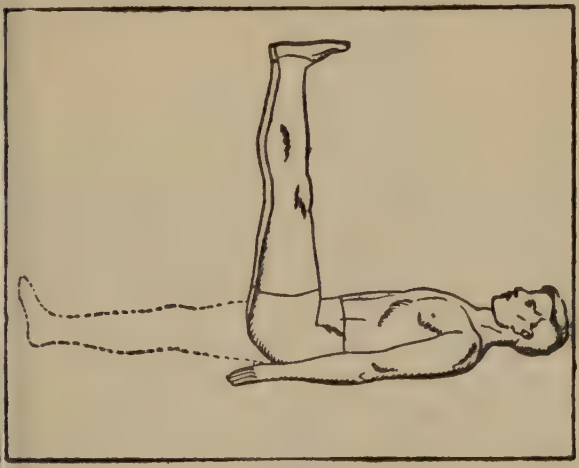


FIG. 4

also be usefully varied and intensified by carrying both legs beyond the right angle point well over the upturned face until—if possible—the toes touch the floor behind your head. This is a good suppling exercise. These movements employ chiefly the lower abdominal muscles.

The foregoing are the principal abdominal exercises. There are many others, but when a man can do the above four exercises fifty times each and feels that he would like to intensify the effort he will derive full satisfaction from the following :

EXERCISE No. 5

(Fig. 5). Lie flat on back ; then raise the legs and body simultaneously, touching toes with the fingers. Hold the position for two seconds, then repeat from the supine position. You can do this until you get that peculiarly satisfying ache of the muscles employed.

The skin as a factor in the process of elimination is not given the attention it deserves. A man should make a point of so exercising as to work up a thorough " sweat " every day. The benefit to the internal organs is incalculable.

Fig 5.

Exercises for the Back Muscles

Having dealt with the abdominal exercises, let us take next the most neglected part of the body, the back. The exercise usually given for the back is touching the toes. This is undoubtedly a good suppling exercise and a necessary preliminary one, but as a developer of muscle it is too easy; there is not enough resistance to give the large muscles of the back sufficient exercise. We therefore give here two exercises which will get these muscles in

condition for the developing exercises dealt with later, for those who desire full-size strength. The first, as already mentioned, is touching the toes. When doing this, be careful to keep the knees rigid. With practice, as bodily suppleness and elasticity are acquired, you will be able to touch your toes without bending the knees. The second and more difficult exercise (Fig. 6) we designate the "rocker."

Lying on chest, raise legs and upper part of the

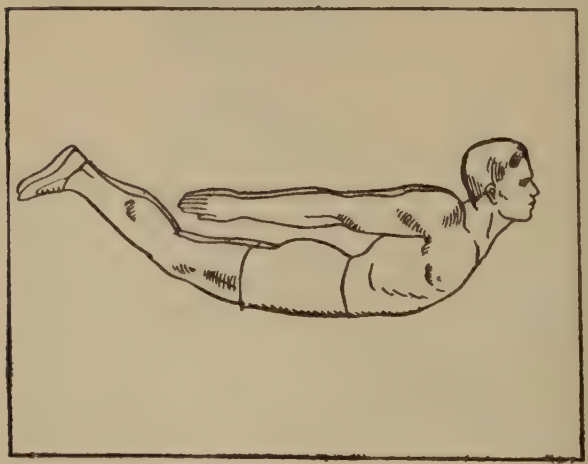


FIG. 6

body, keeping knees straight and endeavour to achieve the position of the rocker of a rocking-chair. Resume original position and repeat. Repeat three times up to twenty. This latter exercise, beginning with three movements and working up to twenty repetitions, faithfully performed, will get a man ready for really heavy work.

Full development of muscle, with retention of its elasticity, calls for extreme contraction and extension, and the best way to get extreme extension is by the extreme contraction of the opposing muscle or muscles. This is perhaps most easily demonstrated by taking the arm as an example. We are all familiar with the contraction of the biceps, but less familiar with the contraction of the opposing muscle at the back of the arm, the triceps, the extreme contraction of which stretches or extends the biceps to the full extent.

The same idea applies to the muscles we have dealt with, viz., the abdominal and back muscles. A full development of the stomach muscles must be accompanied by that of the back muscles or you will find—as in so many cases obtains—a wrong posture of the body—a rounded back due to the weakness and consequent slackness of the back muscles.

Exercises for Side Muscles

The lateral and side muscles come next in importance, and the exercises for these are best performed by lying first on one side and then on the other and raising the head, shoulders and legs from three to twenty times. The formula is as follows: Lying on side, raise legs and shoulders simultaneously,

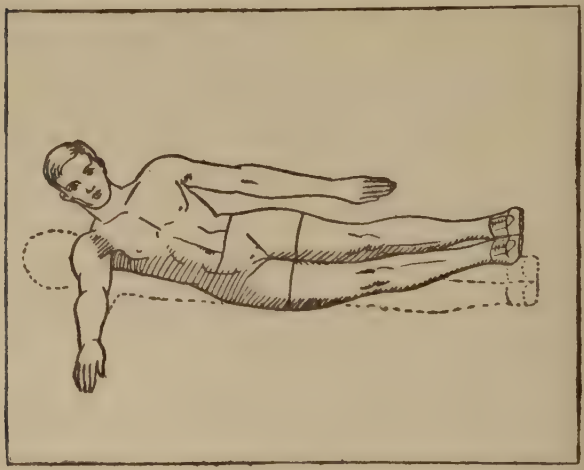


FIG. 7

keeping body in straight alignment. When on right side, extend right arm at right angles with the body to assist in holding balance. Exercise to be

performed on left side also. Repeat three times for each side, working gradually up to twenty. As stated, the principal muscles employed are the side muscles. (Fig. 7).

Exercises for the Legs

The three principal exercises for the legs are: (1) Rising on the toes and squatting; (2) Squatting with the heels kept on the ground 15 inches apart; (3) Squatting with the feet together and heels touching each other.

Neck, Shoulders and Arms

These come next in importance. The neck can be very fully developed by inclining the head forwards, backwards and sideways against the resistance of the hands held against it. For those more strenuously disposed may also be recommended the so-called "bridge," to which recourse is had in Catch-as-Catch-Can wrestling as a means of keeping one's shoulders from touching the mat, which in that style of wrestling is equivalent to defeat. Incidentally, however, this position cannot fail to develop the neck enormously, and proof of the assertion is seen in the majority of wrestlers in

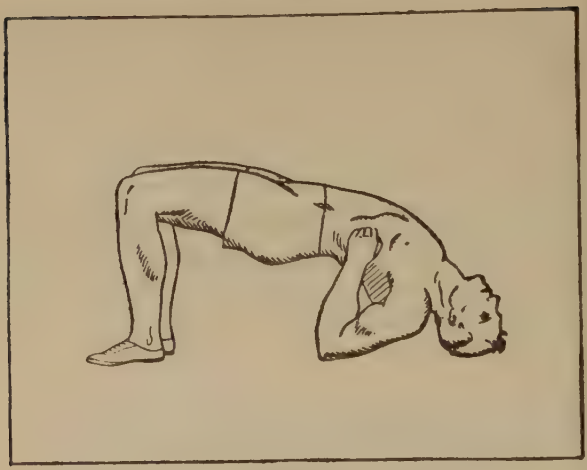


FIG. 8 A

that particular style; as a general rule, they are distinguished by their splendidly developed necks and shoulders. To do the "bridge" you support yourself only with the soles of your feet and the crown of your head, the rest of the body being arched to the utmost possible extent above the ground—see Fig. 8, A and B. The effect of this posture upon the neck muscles can be greatly enhanced by the use of dumb-bells or a bar-bell held above the head, and then raised and lowered

FIG. 8 B

slowly in unison with the body, but these are not absolutely necessary. Everything depends upon the degree of development you are anxious to achieve. As a rule, however, "increase of appetite doth grow with what it feeds on," and having mastered one series of movements, you will most likely sigh for fresh worlds to conquer.

To develop the arms and shoulders dumb-bells are really necessary. It is difficult to get the requisite resistance without weight, but the following

exercises will serve to prepare the shoulder and arm muscles for the full development course dealt with in a later chapter.

The first movement is sometimes styled "on the hands, down." For its accomplishment you lie prone on your stomach and then with the palms of your hands held against the ground approximately at the width of your shoulders, and turned slightly inwards, you press yourself slowly up until your arms are fully extended. While doing this your body should be kept rigid, legs straight, and together, with the toes, of course, downwards. Beginning with three upward and downward movements you may work up to twenty, thirty, forty, or even fifty, according to your strength and endurance, but never to the point of utter exhaustion. Twenty upward and downward movements will probably suffice for the majority. If you persevere with this exercise, it will not be long before you are agreeably aware of very marked improvement in your triceps, your deltoid or shoulder muscles, and your pectoral or chest muscles, more especially.

The foregoing movements are performed for the most part while lying on the floor, although in our reference to "Exercises for the Legs," mention has been made of *squatting movements*. If so inclined

there is no reason why the pupil should not go through these movements with a pair of light dumb-bells in his hands, since these may be found an aid to mental concentration which, as the late Eugene Sandow quite rightly insisted, is a factor indispensable to progressive physical development. The three principal exercises cited are: (1) Rising on the toes and squatting; (2) Squatting with the heels kept on the ground 15 inches apart; (3) Squatting with the feet together and knees touching each other. In performing all these movements it is advisable to hold the arms straight out in front of you at right angles to the shoulders. As an aid to elasticity of the knee and development of the calf and thigh muscles, the pupil might also do worse than imitate the Japanese style of completely kneeling with the buttocks resting on the heels. If the floor feels too hard, a cushion or pillow may be used to kneel upon. It is safe to say that to the universal practice of squatting the Japanese as a race largely owe the comparatively high average of their thigh and calf development. Undoubtedly, too, this practice helps them to retain surprising flexibility of knee until an advanced age, for a Japanese veteran can remain in a squatting posture for hours on end without appearing to suffer the smallest discomfort

while a comparatively youthful Westerner during the same time would find himself almost crippled.

Standing Exercise for Lateral and Side Muscles

These and other standing movements can be usefully performed in front of a mirror. Stand upright; then slowly incline torso from hips to the left, simultaneously extending the straightened left arm downwards as far as possible, while the right arm is curled at the elbow, until the cupped hand with palm upwards comes to rest within the arm-pit. Then reverse the movement by inclining the torso to the right, extending the straightened right arm downwards, and bringing up the bent left arm until the fingers touch the arm-pit. Throughout these movements care must be taken to keep the knees unbent. Very little difficulty should be experienced in repeating these alternate movements as many as twenty times.

Standing Exercise for Development of Pectoral Muscles and Calves

Stand upright facing mirror, arms at sides. Then swing both arms forwards and upwards in a circular

The Sideways Stretch, Twist and Bend

Deep Knee Bend

movement, elbows kept straight, simultaneously rising on the toes, and lowering yourself again on to the heels as your arms are brought back to your sides. Begin with, say, half-a-dozen movements and work up gradually to twenty or twenty-five.

Standing Exercise for Deltoids

Stand upright, with legs in line with the hips, i.e. about a foot apart. Hold left arm out from the side in line with the left shoulder, and the right bent so that the clenched fist touches the left breast or thereabouts, and the elbow is kept level with the right shoulder. Next, swing the right arm extended outwards and as far backwards as possible, letting the upper part of the body follow it, while the left arm is allowed to curve inward to the right until the left fist touches the right breast in the same relative position as the right previously occupied. Then reverse the movement until the starting position is reached, and so on until the requisite number of movements has been completed. Commencing with six, work gradually up to twenty-five movements. As in all these exercises avoid jerky movements.

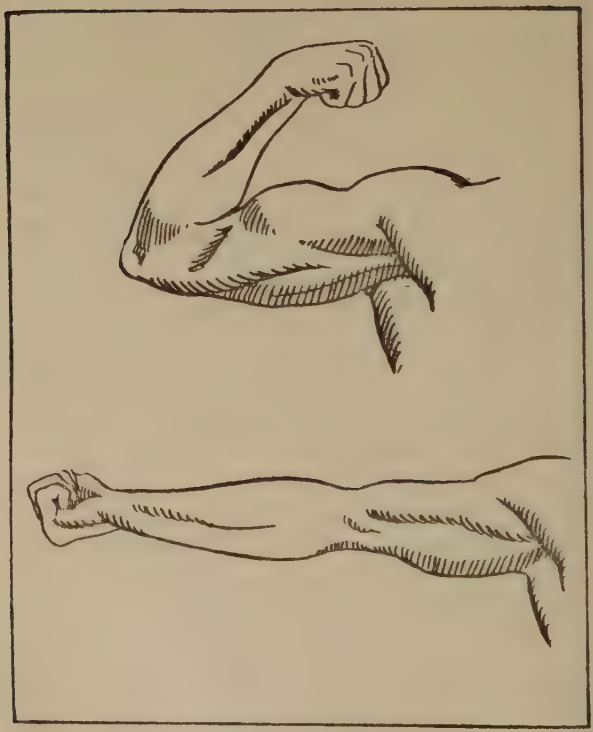


FIG. 9

Standing Exercise for Biceps

Hold arms at full length from the side with clenched fists; bend both arms simultaneously as far inward as possible until you feel the biceps strongly contracting; then raise both arms together to their fullest extent above the head and equidistant with the shoulders; thence lower rhythmically to the original outstretched position in line with the shoulders, and repeat as before. Begin with six and work gradually up to twenty-five repetitions.

Standing Exercise for Lower Abdominals and Thigh

Stand erect with feet together. Raise first right knee and then left knee alternately, until each knee touches the chest. Begin with six movements and increase to a dozen with either leg.

As a simple sequel to the foregoing, raise each leg in turn with tensed knees outwards to left and right respectively as far as possible without straining. Hands can conveniently rest on hips during this exercise, which is an excellent one for the thigh muscles. Throughout these movements the weight of the body should rest on the ball of the foot.

This exercise will not be found unduly tiring, and may be repeated virtually *ad lib.*

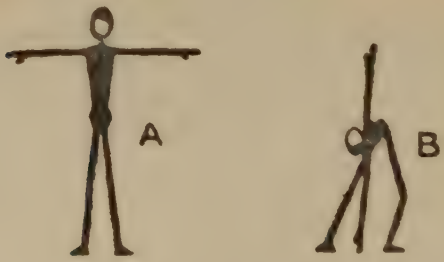
Standing Exercise for Shoulders, Biceps, Triceps, and Trunk Muscles

Stand erect with heels together, arms at sides. Raise arms sidewards and outwards until they are level with the shoulders, then bend them as far as possible inwards, biceps contracted. Lift and straighten arms above head, at the same time advancing the left foot a pace outwards with knee slightly bent, right leg to the rear with knee tensed. Bend entire trunk downwards until fingers of both hands touch the floor somewhat beyond left foot. Recover to upright position as at commencement of movement. Repeat arm movement but this time when the arms are lifted and straightened above the head, advance the right instead of the left foot, the latter being held in the rear with stiffened knee. Bend and touch the floor with outstretched arms in advance of right foot; then recover as before. Few will experience any difficulty in beginning with six and working up to twelve movements either side.

FIG. 10A

Standing Exercise for Abdominal, Waist and Back Muscles

(Fig. 10, A and B). Stand erect, feet about 18 inches apart, arms extended in line with shoulders. Twist



body at waist until left hand is pointing to the front, arms to be kept in alignment throughout the movement. Bending left knee, touch floor with left hand at a point midway between the feet, and look up at right hand. Raise the body without untwisting, swing round until the right hand is pointing to the front, bend right knee, touch floor with right hand at a point midway between the feet, and look up at left hand. Raise body without untwisting and repeat the movement, first left hand and then right hand touching floor. Repeat six times and work up to twelve.

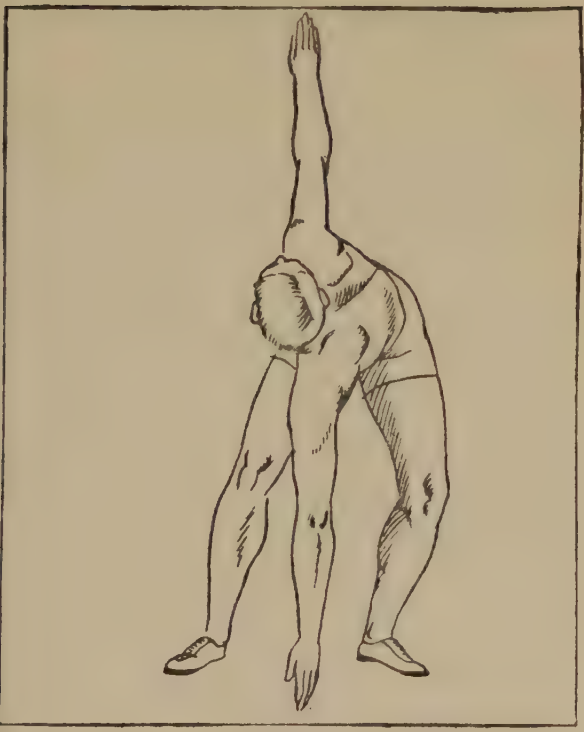


Fig. 10 B

Standing Exercise for Thighs, Latissimus Dorsi, Deltoids and Waist Muscles

Stand with legs as far apart as conveniently possible. Raise arms above head to full extent; swing head and body from the waist downwards, trying to keep the head between the arms until your hands pass slightly between your legs and it is impossible to bend further. Then from that point swing hands, head and body upwards to the erect position; thence carry hands and arms backwards with a circular movement and again forwards and upwards until they are fully extended above the head as in the first position; and repeat the series of movements as described This is an exhilarating and by no means unduly tiring exercise, and can be repeated up to a dozen times without difficulty. As remarked earlier, this and other standing exercises may be performed, if desired, with a pair of light dumb-bells, but this is entirely optional.

Standing Exercise for Latissimus Dorsi and Deltoids

Stand erect at attention. Step a good pace to your left front with your left leg, and simultaneously raise your left arm with clenched fist to its full

extent, your right arm curled with hand resting lightly against side near arm-pit. Return to first position, and at once step to right front with right leg and similarly raise right arm to full extent, and so on, *ad lib.* This, too, is an easy exercise involving hardly any great muscular strain. A dozen repetitions should not be difficult even for members of the older generation.

Standing Exercise for Triceps, Shoulder and Trapezius Muscles

This consists simply in standing erect with heels together, and raising either arm alternately to full extent above head until you feel the triceps entirely taut, together with latissimus dorsi. Like the two preceding exercises, these movements are absurdly easy and may be repeated *ad lib.*; but they are none the less quite useful and valuable auxiliaries to our repertoire of "jerks"—in itself a misnomer, seeing that one should above all try to avoid jerky and convulsive movements.

If what a man desires is the health and fitness that come from good assimilation and elimination, *i.e.* good digestion and the well-being that is dependent

upon the general exercise of his muscular and organic systems, the foregoing "free" exercises will ensure this not too ambitious objective. These exercises should be performed daily, and will take up only fifteen minutes of his time. Generally speaking, the best time to do them is after shaving in the morning and before the bath. After that he can eat his breakfast with the feeling that he has done what is necessary to ensure good results. He will also find that what games he may go in for will be more efficiently played by reason of the increase in his general fitness. He will tackle his work also with a clearer brain and increased confidence.

There are, however, men who require more than this; they aim at full development and great strength—the physique that registers a 10-inch difference between chest and waist; the equal measurement of the contracted biceps and calf, with the neck one inch bigger in circumference than either, and the strength that accompanies such measurements.

Let us take for example a man between twenty and thirty years of age with a wrist of seven inches, and 5 feet 8 or 9 inches in height. What is a good, not maximum, development for a man like that? His neck should measure 15½ to 16 inches, chest,

normal, 40 inches; waist, 30 inches; biceps, 14½ to 15 inches; thigh, 22½ to 23 inches; and calf, 14½ to 15 inches. This would bring his weight to about 12 stone stripped. This is the type of man who would be good at wrestling, boxing, and all sports except race-running, and long-distance walking against time. To achieve that kind of development now under consideration a man must work, and his work must be carefully and expertly directed. The type of man must also be considered.

The "greyhound" type cannot acquire the heavy muscular development of the "mastiff." But the "greyhound" need not be emaciated, nor need the "mastiff" be full-bellied. If each will bear in mind the relative differences in measurement we have mentioned, chest 10 inches bigger than waist, upper arm and calf the same in circumference, and neck one inch bigger than either of the two latter, he will find that his muscular development is satisfactory. But "free" movements will not ensure such measurements.

None the less, even when you are tackling heavier work, you should not wholly abandon "free" movements. Apart from their vital importance in the more or less preparatory stages of physical development, "free" movements are

always necessary in order to retain suppleness of body. Free movements are further to be commended because they can be practised without the aid of any apparatus, and virtually anywhere, provided there is enough floor space for you to lie upon with limbs fully extended. When travelling, for example, available space may be so restricted that even a recumbent position is inconvenient, say in a train or in a cramped cabin on shipboard. In such cases, free movements may have to be confined to the standing position, or perhaps even temporarily suspended altogether.

PART II

Exercises Necessary for Attainment of Full Development and Great Strength

Now let us tackle the subject of full development and great strength, and what it is necessary to do in order to acquire them.

First and foremost. there is one system only—that of progressive resistance. All authorities will agree on that principle. Many, however, differ as to the best method of application. The simplest and best is progressive heavy weight-lifting practice. And that means that the pupil begins with a bar-bell or dumb-bell that he can easily handle, one, for instance, that he can put up above his head without strain ten times. In the case of the bar-bell, using two hands; in the case of the dumb-bell, one hand.

The great advantage of the progressive weight-lifting method is that it creates a strong back more quickly and easily than any other form of exercise. On the other hand, light weights, free movements—commonly called physical jerks—games, and ordinary apparatus gymnastics leave this important part of the body comparatively unexercised. It will be

seen from diagrams of the spinal column, which shew also the Erector Spinae muscles, that the full contraction of these muscles can be obtained only by curving the spine backwards against resistance. The resistance as supplied by weights will be dealt with in Part III, in which is outlined the progressive weight-lifting theory.

Powerful contraction can, however, be obtained without the use of apparatus. It must be remembered that it is necessary to limber up, to warm up the muscles before tackling an exercise calling for unusual effort. Particularly is this necessary in the case of the back. Much of the lumbago suffered by so many can be accounted for by the fact that the back has been too suddenly brought into play. So few people know when they are using the back muscles and when the abdominal muscles until apprised of the fact by pain!

In this connexion the value of regular morning "setting-up" exercises cannot be too strongly emphasized; they have the effect of getting all the trunk muscles in condition for any sudden call that may be made upon them in the course of the day. You will hear a man attribute an attack of "lumbago" to any and every cause but muscular effort such as is involved in a sudden or jerky

movement. He will tell you when you begin to probe into the matter that he has done nothing in the way of bodily exertion. Sometimes he may remember that he has lifted a suitcase into the railway carriage rack; shifted a desk; moved a despatch box from the floor, or undertaken any one of the several little, and rightly called "little," exertions necessitated by the day's routine—pulled up an obstinate window sash, may be; and he will say, also rightly, "There is nothing in that. I've done those things hundreds of times without any ill effect." There is nothing certainly in little efforts of that kind when a man keeps his muscular system alive, as he is meant to do, by a thorough oxygenation of the blood and the active circulation obtained by the fifteen minutes' work, as detailed in these chapters.

No riding man will start his morning's ride by galloping his horse or suddenly turning it. After mounting without jarring either the horse's spine or his own, he starts with an easy walk, gradually quickening the pace; then trots for a while, an easy canter, by which time they are both warmed up and ready for anything in the way of real effort.

The average man of portly build shaves and bathes with the minimum of exertion; eats a hearty

breakfast, and rather prides himself on his ability to sprint a few yards to catch a 'bus or a train, regarding his consequent breathlessness and the pounding of his heart as a conquest of spirit over flesh. What he has done is to impose a sudden strain upon organs and muscles impeded in their neglected condition by unnecessary accumulation of fat.

Flesh is composed of the right proportions of muscle and fat. The man of whom we are speaking is fat not "fleshy," and barring glandular trouble he has no right to be fat, if any such state exists as right to be fat.

Many a man will do a few abdominal exercises to try to correct a protruding stomach, using the word in its commonly accepted form as covering the part of the body from the chest to well below the waist-line, referred to usually as "tummy" by those concerned—if mildly—in its reduction. But he does nothing for his back; he cannot see his back, and he therefore forgets about it. It is the most neglected part of the body. The exercises he does for his "tummy" merely stretch the back muscles, calling for no contraction, and as we have already mentioned, a muscle for its health and growth depends upon full extension and full contraction.

Therefore a man whose main objective is the reduction of abdominal protuberance should bear in mind the equal importance of back development. The proper carriage of the body is equally dependent upon strong back muscles, and without proper exercise a great part of the work done for the abdominal muscles and the layers of fat covering them is undone by a slouching and slack carriage.

The most important muscles in the back are the erector spinae, those that raise and hold the spine in an erect position, and that by their full contraction enable the body to be held in the graceful curve of the swallow dive. (See Fig. 6.)

The first of these exercises is as follows: Lie flat on the floor face downwards, arms by the side. Then raise the head and shoulders and the legs with the knees straight.

Begin gently and be careful never to jerk; the movement should be a smooth one, and the position should be held for one second; the head, chest and legs should then be lowered gradually to the floor.

Three repetitions daily to start with, the number of movements to be increased as strength permits. Care must be taken so that the breathing may be as full and deep as possible, without any suggestion of breathlessness or the condition known as "winded." Properly and regularly performed, this exercise will produce development and great suppleness, and will completely balance the stretching of these same muscles entailed by the performance of abdominal exercises already mentioned.

The second exercise is that known as the Bridge in the Catch-as-Catch-Can and Graeco-Roman forms of wrestling. From a supine position, flat on the back on the floor, with a cushion under the head, draw up the knees with the soles of the feet on the floor, raise the body with the help of the elbows and tilt back the head until the whole weight of the body is supported on the head, the elbows and the feet. (See Fig. 8 A.)

Then, assisted by the elbows, raise and lower the upper part of the body by the full employment of the muscles at the back of the neck. (See Fig. 8 B).

This exercise must be taken gently at first or a stiff neck will result; but it will be found that the muscles of the neck respond very quickly if care be taken to avoid overstrain. After some time the

assistance of the elbows and arms can be dispensed with, and then the full benefit of the exercise will be felt. Each time the body is lowered the shoulders will come in contact with the floor only again to be raised by the full contraction of the neck and spinal muscles. All wrestlers use this exercise. A powerful neck is indispensable to a wrestler. Sometimes this position is the only one he can assume to avert defeat by keeping his shoulders clear of the floor, and he has to be able to employ it with the full weight of his opponent upon him.

The principal strain comes upon the neck muscles, but the erector spinae muscles also come very strongly into play—in fact the entire muscular system from the back of the head to the back of the knees. Anyone performing this exercise has indisputable evidence of the vigorous and strength producing nature of the movement.

Two more supplementary exercises are recommended as a means to the same end, i.e. the cultivation and development of powerful back muscles and a graceful carriage. These are (1) the so-called "hand balance," and (2) standing on the head. There are, we make bold to assert, few if any positions in the entire repertoire of gymnastic movements more graceful individually than the

hand-balance when performed by an expert, say on the parallel-bars or simply on the floor, without extraneous support. We are not, of course, so exigent as to expect the average person successfully to emulate the expert in this respect. Nor is this necessary. For the majority, at any rate, the best plan is to hand balance with the hands placed on the floor say two or three feet in front of a door or wall, so that the latter can support the feet if—which is generally the case—they pass beyond the balancing point. The principal object of the exercise is to achieve the maximum inward curvature of the spine, with the knees unbent. This upside down posture (Fig. 11) can be held until the flow of blood to the head begins to cause discomfort. Standing on the head can be practised in the same manner, i.e. in front of a convenient door or wall, although with a little practice the student should experience no difficulty in maintaining his balance in the middle of the floor with his head on a cushion or pillow ; to hold one's equilibrium in this position is nothing like so hard as in the case of the hand-balance already described.

The first two exercises, together with the two supplementary ones just described, are practically the only ones that without apparatus give full and

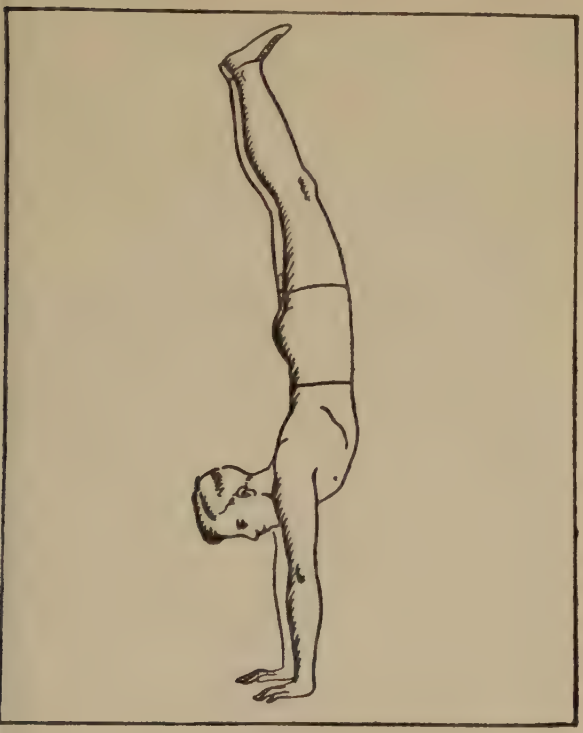


FIG. 11

vigorous contraction of the back muscles, and they are invaluable to any man who wishes to gain health and strength far above the average.

The importance of the back muscles cannot be too highly stressed. In them is centred the secret of a man's virility. No man can be strong unless his back is the strongest part of him, and a full development of the back muscles should be his main aim.

Taking the man from the age of twenty-one years upwards, the following daily programme will ensure good all-round development, speed and organic health, the health that means freedom from constipation and the thorough oxygenation of the blood, the toning up of the muscular and nervous system.

This programme or schedule of exercises is drawn up specially for what is sometimes called the "white collar brigade"—that large portion of the community that earns its living by the performance of duties principally of a sedentary nature between the hours of 9 a.m. and 6 p.m.

It may be modified in accordance with opportunity, but it is within the capacity of those who desire physical fitness sufficiently to dispense with the excuse of " no time for exercise." We have yet

to meet the man who does not spend at least half-an-hour a day, say four hours in the course of a week, in doing that which he most wishes to do when it is not a case of not having the money to buy his particular pleasure. This programme entails no financial expenditure.

Upon getting up in the morning drink a glass of water—at whatever temperature is pleasing to you. Some like it cold, some hot, some tepid or blood heat. If taken at the temperature of the body it is out of the stomach in twenty minutes. Then shave. This helps to complete the awakening process.

EXERCISE No. 1

Begin by exhaling; blow the air out steadily through the mouth, emptying the lungs from below upwards until you finish with the chest contracted and as much air squeezed out as possible without undue strain. You will then feel the need of a full breath, and lifting the chest, not the shoulders, expand to the full, back and front, again without strain.

Do this five times. You will find with a little practice that you can empty and fill the lungs with little effort. The points to bear in mind are:

Well-ventilated room.

No retention of breath. Let a full inhalation be followed immediately by full exhalation, but begin with the exhalation.

No strain. Remember that it is the expansion of the chest walls by the use of the intercostal muscles that fills the lungs with air. *You cannot expand the chest by sucking in air; you draw in the air by expanding the chest.* The bellows-makers copied nature!

EXERCISE No. 2

Lie on the floor, arms by the sides. Raise the legs with knees stiff until the legs are at right angles to the body (see Fig. 4), then lower to the floor and repeat. Begin with three repetitions, and increase to 10 or 20, as strength permits.

This is a strenuous exercise, and those unaccustomed to abdominal exercise should begin by raising

the legs separately, completing the movement with each leg before beginning with the other.

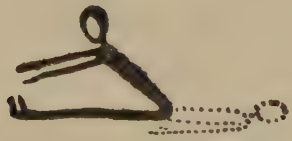
Principal muscles employed : Lower abdominal.

EXERCISE No. 3

Lie on the back—arms at the sides. Curl the body up, head, shoulders, chest, until the forward stretching hands touch the toes. (See Fig. 5.)

Begin with 3 repetitions, increase to 20.

This exercise is usually given with the instruction to place the feet under the wardrobe, etc., and keeping a straight back to rise into a sitting position. But to perform the exercise in that manner is comparatively easy. The main object of the movement



is to employ the upper abdominal muscles, and when the feet are not held, those muscles have to come

more vigorously into play in order to curl the upper part of the body and thereby avoid the necessity of lifting the feet.

It would be possible to dwell at considerable length on these differences, but if the reader will try the two methods for himself he will require no further proof as to which is the better method.

EXERCISE No. 4

Lie on the right side, right arm extended at right angles to the body, left arm held along the side. Lift legs with straight knees, and lift head and

shoulders from the floor, turning the head so as to look along the left side. Hold position for a moment, then relax and repeat. (See Fig. 7.)

Begin with 3, increase to 10.

Perform corresponding movements when lying

on the left side, i.e. left arm extended at right angles to the body, right arm held along the side. When head and shoulders are lifted from the floor the head will naturally be turned so as to look along the right side.

This exercise brings into play all the muscles on the sides of the body and neck, but particularly the obliquus abdominis—the oblique abdominal, the muscle that girdles the sides of the waist.

EXERCISE No. 5

Lie face downwards, arms by the sides. Raise the shoulders and legs, keeping the knees straight, forming the curve of the swallow dive. (See Fig. 6.)

Relax and repeat. Begin with 3, increase to 10.

You have now exercised all the main groups of muscles of the trunk.

These exercises can be performed by a man of any age, provided he will, if unaccustomed to such exercise, take them gently to begin with, lifting one leg at a time, partially raising the head and trunk,

gradually increasing the severity of each exercise. When performed with full contraction, the most powerful athlete will find these exercises sufficiently strenuous to give him full scope; the more powerful the muscle the more vigorous the contraction.

There is one more abdominal exercise for those who wish for the maximum of exertion in the minimum of time.

EXERCISE No. 6

Lie on back, arms stretched behind head and touching the floor. Now raise, but not too quickly, arms, body and legs, bringing the arms forward until the fingers touch the toes; hold for a moment, relax and repeat. Faithfully performed, 10 repetitions will prove sufficient. (See Fig. 5.)

These exercises can be done within 10 minutes.

The following three exercises are for men who can do the first six exercises without difficulty; they are to be done in addition and will take not more than a further five minutes.

EXERCISE No. 7

This is a variation of the old "press up," but gives the anterior deltoids, the pectorals, and the triceps more work.

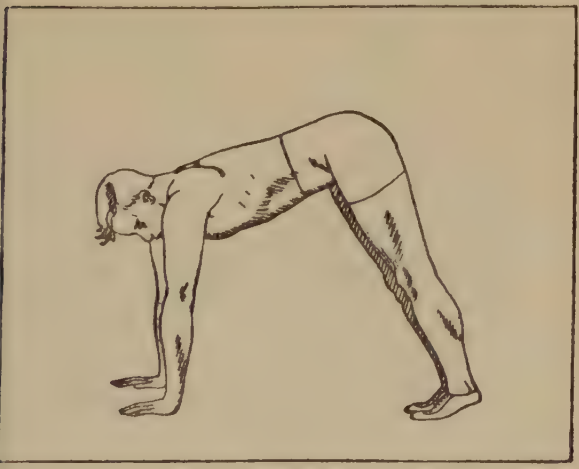


FIG. 12 A

Taking up a position on the hands and toes, but with the toes some six inches closer to the hands than in the ordinary "press up" (Fig. 12 A), sink

the chest almost to the floor, carry the body forward and press up with a circular movement (Fig. 12 B), keeping a straight back.

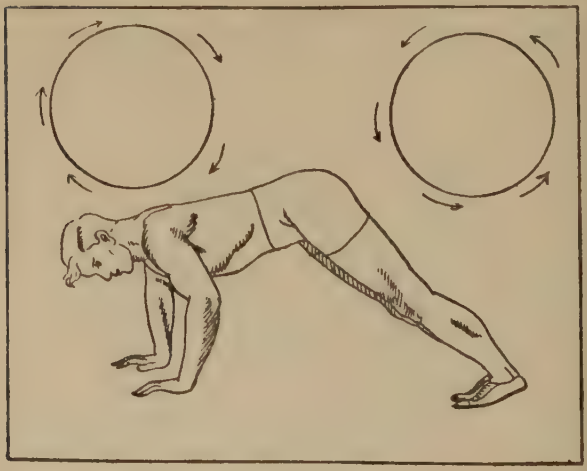


FIG. 12 B

Then reverse the circle by carrying the body forward before bending the arms and sinking the

chest to the floor, completing the movement by bending the arms and bringing the chest almost to the floor in advance of the hands (Fig. 12 C), carrying the chest in a backward circular movement between

FIG. 12 C

and back of the hands, straightening the arms and resuming the starting position. (Fig. 12 D).

FIG. 12 D

EXERCISE No. 8

From an upright position jump forward about three feet, bending the knees and landing in a squatting position, and without pause spring back to the original position on the toes with the hands up to the shoulders and the whole body tensed from the toes up.

This is a variation of the old squatting exercise for the legs, and will give great strength combined

with great agility if the spring back from the squat is made without pause and more quickly than the spring forward. The value of the exercise lies principally in the snap of the recoil.

This exercise is not to be undertaken by any who have not thoroughly conditioned themselves by the previous exercises and a certain amount of slowly performed deep knee bending or squatting exercise.

It may be repeated ten or twenty times provided the man exercising will stop immediately he feels the effect upon his breathing, i.e. he must not get puffed.

It is not generally understood that what strains the heart is continuing exertion beyond the point of getting "winded" or "puffed." Many a man who decries exercises such as are here recommended on the grounds of heart strain will sprint a few yards for a 'bus or train and get aboard "blown to the wide." Such a man is asking for heart trouble.

No man who gradually conditions himself will strain his heart, no matter what the effort may be, if the effort or series of efforts do not exceed his breathing capacity, and that capacity depends upon the state of his heart and not the state of his lungs, as is generally supposed.

EXERCISE No. 9

"Wrestler's Bridge"

Lie on the back with the back of the head on a cushion, draw up the feet to within a few inches of the buttocks; now raise the body until the only points touching the floor are the top of the head and the soles of the feet. (See Fig. 8 B).

It is as well to begin this exercise by bringing in the elbows to the assistance of the neck muscles. (See Fig. 8 A.) After a certain amount of practice the body can be raised and lowered without the help of the arms.

This is a magnificent exercise for the neck muscles, and also for all the muscles from the back of the neck along the spine and the backs of the thighs.

A wrestler must be able to support the full weight of his opponent while in this position, the only thing that in certain circumstances will prevent his opponent from securing a fall by forcing both his shoulder blades to touch the floor.

It is undeniable that among young Englishmen, to a greater extent perhaps than among continental athletes, an otherwise fine physique is marred by a poorly developed neck. Study of Greek or Roman

statuary in the British Museum or elsewhere will convince anybody that the ancients were alive to the importance of a well-developed neck in the, so to speak, harmonious "ensemble" of the human form. Furthermore, in any practical system of self-defence or attack the weak-necked man labours under a severe handicap from the very start, seeing that his neck offers a vulnerable point for the application of a stranglehold which would be likely at once to reduce him to submission. The advantage of a well-developed and well-moulded neck in the sum-total of the athlete's physical make-up can be instantly appreciated in the Japanese Jiu-jitsu or Judo expert, as well as in our Western Graeco-Roman and Catch-as-Catch-Can wrestlers, whose physique is as a rule more impressive than that of most boxers, for that very reason.

The few selected exercises described in the foregoing pages, taking in all some fifteen minutes to perform, will make and keep a man fit, internally and externally, and will condition him for what the day may bring forth. They will cure and keep him free from constipation, ensure a full and vigorous circulation, and, as a natural concomitant of that feeling of all-round well-being inseparable from physical fitness, enhance self-confidence and imbue

him with what may perhaps be called a " superiority complex," in the best sense, lacking which his chances of success in the battle of life are likely to be seriously minimized.

PART III

Weight-Lifting

Of all questions relating to the development of the body, none has raised greater controversy than that of the efficiency of weight-lifting, even when styled "Progressive-Heavy-Weight-Lifting-Practice." The arguments against are well known and very generally accepted. They are stated with the conviction born of the incomplete knowledge that is unaware of its incompleteness. In proportion to their vehemence of statement they sway opinion. In general they are to this effect:

1. Weight-lifting makes you slow.
2. Weight-lifting makes you muscle-bound.
3. Weight-lifting causes heart-strain, etc.

To take them in order:

1. Any exercise done slowly tends to make one slow; but the muscle that is built up by certain exercises that by reason of their nature must be performed slowly can be taught to acquire speed. The particular exercise for the development of the biceps muscle, known as the **slow curl**, most

certainly achieves its objective. Were a man to confine his activities to that one exercise the effect would be to make him even more slow than a man content with one exercise must of necessity be, constitutionally and temperamentally. But the slowness would not be due entirely or even in greater measure to the development of the biceps and his peculiar mental and physical " make-up " ; it would be due also to the absence of development of the antagonistic muscle, the triceps, which extends the arm. This will be dealt with in the reply under No. 2.

Weight-lifting practice, as a matter of fact, develops a high rate of speed. A man who can raise above his head over 400 lb. in the T.H.C. and J. (two hands clean and jerk) is the possessor of a speed of movement superior to that exhibited by many heavy-weight boxers. This lift and the snatch lifts combine co-ordination of muscle with great speed of movement to a degree that must be seen to be believed.

2. The condition known as muscle-bound. This is just what modern weight-lifting practice does *not* produce. The general understanding of muscle-bound is that large muscles restrict freedom and speed of movement—that they literally tie up a man.

A man is muscle-bound when the opposing muscles are unevenly developed. An arm with a large biceps and practically no triceps development cannot be quickly extended—there is a certain amount of resistance even in a relaxed muscle that the opposing muscle has to overcome, and a badly trained muscle cannot be freely relaxed. The absence of triceps development is conclusive proof that the biceps, though developed in size, has not been trained to relax in response to the call of the triceps, and has probably never been fully relaxed and suppled. If you felt the biceps, even in so-called repose, you would find it tense. A muscle in repose should be " as soft as butter."

A man is muscle-bound when his muscles have never been taught to be quick, irrespective of their size. When in addition he has added thereto size with no teaching of co-ordination and speed, he remains muscle-bound. We have all met men who have no muscle to speak of and who are slow, just as we have met large-muscled men who are slow. It is the quality rather than the size of the muscle that counts ; it is the cart-horse or the race-horse quality.

The small-muscled man who is quick is well balanced muscularly, with muscle of good quality

and a highly-developed nervous system that loses no time in transmission of energy in response to the brain message.

Speed of movement is not so much a matter of muscle; it is much more a matter of perfect co-ordination of brain, nerves and muscles. Some men in a physical crisis move quickly, others slowly, and the cause lies principally in the individual brain response to the demands of the situation, and the efficiency of the nervous and muscular systems in carrying the message and re-acting thereto. And that applies whether we are speaking of so-called consciously directed movement or instinctive movement. Training will effect wonders, but there is always the individual equation (" make-up ") to be taken into account. One man can add up a column of figures with lightning speed, but be held up by the bandit who suddenly appears on the other side of the counter, while the office " slow-coach " has either disappeared under the counter or has effectively hurled a paper-weight and scored a knock-out. What do you want?

Strength

Weight-lifting practice will develop strength of the internal organic, nervous and muscular systems

more rapidly and more thoroughly than any ohter form of exercise.

Development?

To develop muscle you must gradually and systematically increase the demand upon it by resistance, and in weight-lifting practice you can regulate this resistance and increase it by a ¼ lb. at a time.

Speed?

We have already pointed out that included in weight-lifting practice are certain exercises that in their performance call for speed of a very high order.

Heart-Strain

What causes strain, strain of any kind? The sudden or sustained demand in excess of the supply. The untrained man who sprints to catch a train or 'bus and boards it gasping for breath, is subjecting his heart to a far greater strain than the trained athlete extending himself to the full limit of his muscular power.

Before a man takes up weight-lifting practice he should follow the course outlined in the earlier

chapters of this book and thereby tune up his organic, nervous and muscular systems. The heart, as every one should know, is a muscle and can be trained by graduated demand to supply the lungs with blood to be oxygenated and sufficient to meet any call made upon it by the other muscles of the body. The course of trunk and general exercises referred to above will bring a man to the condition where he can quite safely try out his strength. But we—the authors of this book—do not believe in "try-outs" except under expert observation and guidance. Weight-lifting practice will strain the heart of no man who follows first the course already given which will ensure general fitness and then, if he desires large muscular development and great strength, the course which now follows in addition to the abdominal and back exercises already practised.

It must be clearly understood that this course is not designed to enable a man to break records; that entails strict compliance with the rules governing such records. If a man is aiming at competition, he should place himself in the hands of an expert, who will "put him wise" in that respect. These exercises have for their object the development of strength, muscle and speed, without regard to such niceties as "heels together," and the many other

details, disregard of which would mean disqualification in a recognised competition.

This weight-lifting practice course entails the purchase of a disc-loading bar-bell and dumb-bells. The number of discs required will be in proportion to the strength of the man and can be added to with the increase in strength that will surely be acquired. A man should begin with one-half the weight of bar-bell that he can comfortably raise above his head with both hands, and one-half the weight of dumb-bell that he can raise above his head with one hand, and by " raise " we mean push, not jerk, e.g. if with two hands he can push a bar-bell weighing 40 lb. he must begin with a bar-bell weighing 20 lb., and dumb-bells weighing not more than 10 or 15 lbs. each.

EXERCISE No. 1

Stance.—Erect position, feet 12 to 18 inches apart, bar-bell with the line of the bar running across the insteps. Bending the knees, with backs of hands to the front, grasp bar with hands apart a distance about the width of the shoulders (Fig. 13 A). Pull in to chest, straightening the back and legs and dropping the elbows beneath the bar (Fig. 13 B). Hold the position for two seconds, then return the

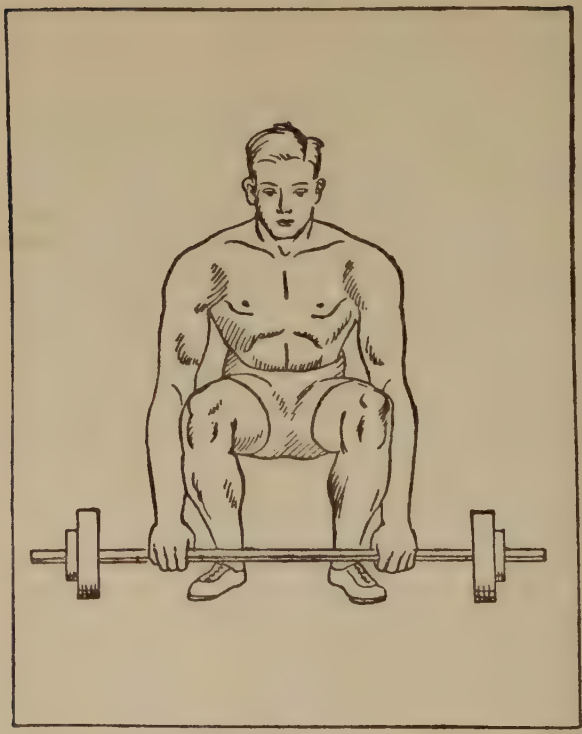


FIG. 13 A

bar to the ground, leaving it there and resuming the erect position. Repeat three times, working up

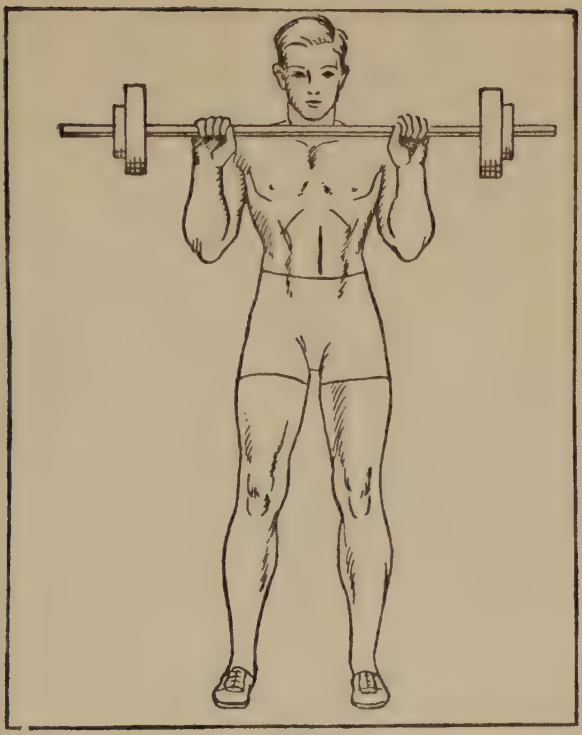


FIG. 13 B

gradually to ten times, as the strength permits. Principal muscles employed: Back and thigh.

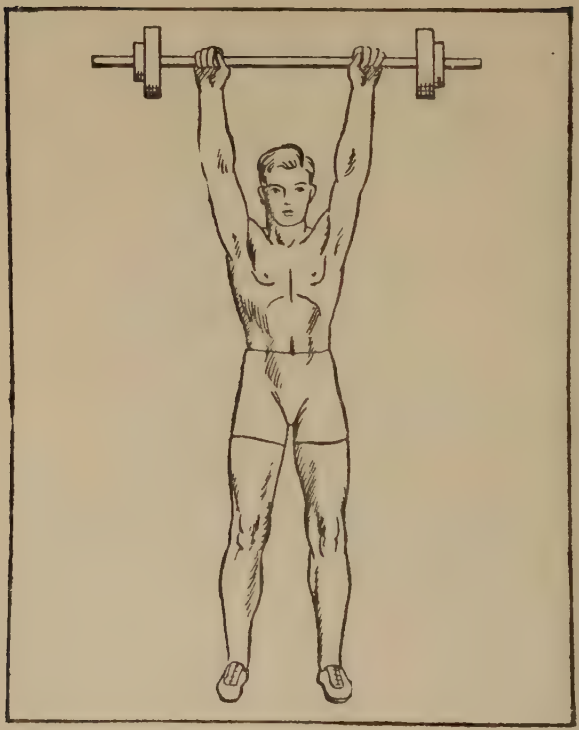


FIG. 14

EXERCISE No. 2

Pull bar in to chest as in Exercise No. 1. Then without leaning back push the bar to arms' length above the head, locking the elbows (Fig. 14). Lower the bar to the chest and again push up. Repeat three times, working up gradually to ten times. Principal muscles employed: Back, thigh, deltoids, trapezius and triceps.

EXERCISE No. 3

Grasp the bar-bell as in Exercise No. 1, but with the palms of the hands to the front. Rise into the erect position, the arms remaining unbent and the bar-bell in front of the thighs. Without moving the body curl the bar-bell up slowly to the shoulders; then lower steadily until the arms are again at full stretch. Repeat three times, increasing to ten. Muscles employed: Biceps.

EXERCISE No. 4

With the bar-bell behind the heels stoop down and grasp it, palms to the front, and rise to erect position. Lift bar-bell in to small of the back by

raising the elbows; then keeping the elbows in position straighten the arms, pushing the bar-bell outwards and upwards. Return bar-bell to small of the back, still keeping elbows up. Repeat three times, and increase to ten. Do same exercise but with backs of hands to the front.

These two movements have a powerful effect upon the triceps muscle, the three-headed muscle at the back of the arm, but to get the full effect there must be no swinging of the bar-bell; it must be slowly raised by the full contraction of the triceps.

EXERCISE No. 5

As in Exercise No. 2, but lower bar behind the head each time and push up from there. Repeat three times, increasing to ten. Principal muscles employed: Back, thigh, deltoids, trapezius and triceps.

EXERCISE No. 6

With backs of hands to the front, bending the knees, grasp bar-bell and rise to erect position.

Without bending knees, lower bar-bell slowly to the floor and retaining grasp on bell return with unbent knees to the erect position. Repeat three times, increasing to ten. Principal muscle employed: Erector spinae.

EXERCISE No. 7

Standing sideways to the bar-bell, grasp the centre of the bar with the right hand and resume erect posture. Then bend over to the right, recover, bend to the left. Repeat three times, increasing to ten. Perform same exercise also with left hand. Principal muscles employed: The usually neglected side muscles, particularly the obliquus abdominis, the muscle running along and above the edge of the top of the hip, and with the abdominals forming a girdle of muscle.

EXERCISE No. 8

From the erect position with the bar-bell just over the toes grasp the bar-bell and in one clean movement raise it to the full stretch of the arms above the head. This movement has to be executed with the utmost speed of which the pupil is capable. It calls for

perfect co-ordination of muscular effort. Repeat three times. Principal muscles employed · Thigh, back and shoulder.

EXERCISE No. 9

Pull bar-bell into chest, as in Exercises 1 and 2, but as quickly as possible and dropping beneath the weight almost into a squat (Fig. 15 A). Then straighten the legs, holding the bar-bell in line with the shoulders but not touching the chest. Bending the legs with the full strength of the thighs and shoulders, jerk the bar-bell upwards, and as it is rising drop almost into a squat, at the same time straightening and locking the arms (Fig. 15 B). Then straighten the legs and hold the bar-bell at the full stretch of the arms above the head for two seconds (Fig. 15 C). Lower bar-bell to chest and again jerk above the head. Repeat three times. Principal muscles employed : Thigh, back, shoulder, trapezius and triceps.

Exercises 8 and 9 should also be performed with each arm separately.

After a certain amount of practice, during which time the number of repetitions has been increased

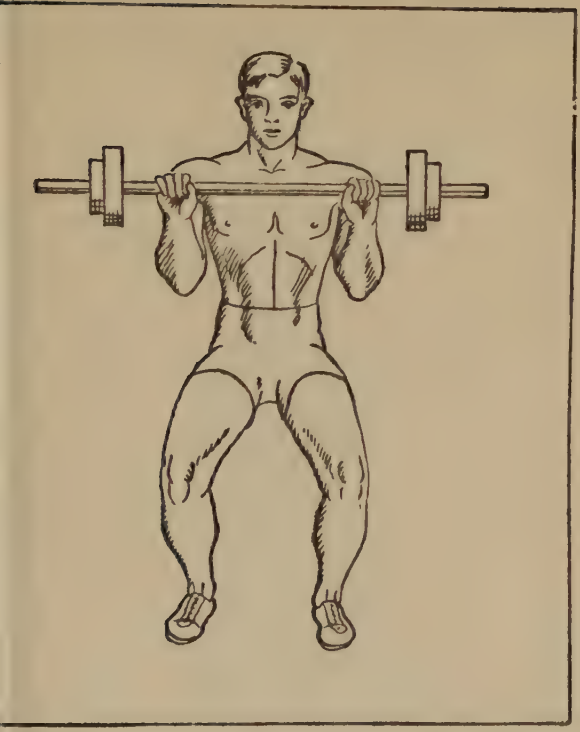


FIG. 15 A

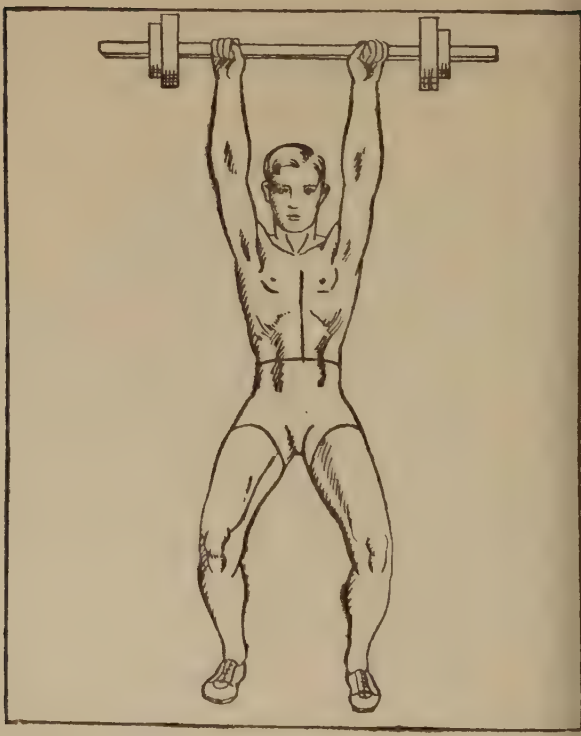


FIG. 15B

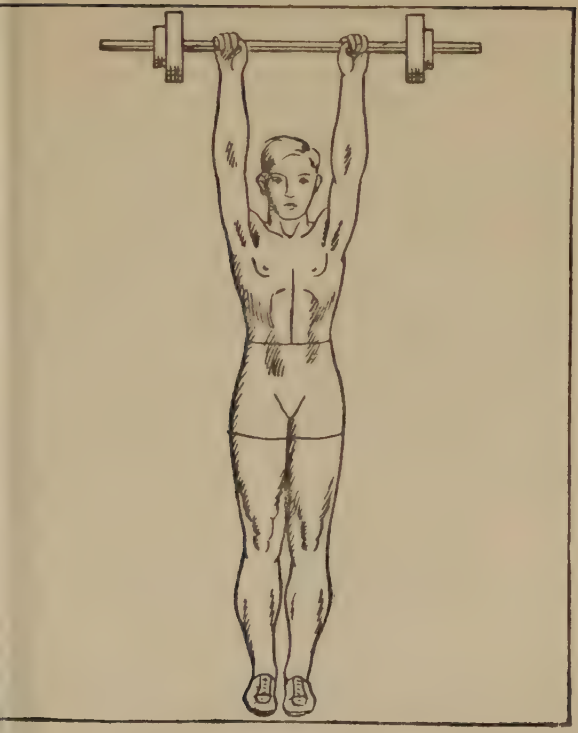


FIG. 15C

to ten, it will be found that some exercises call for a greater increase in weight than do others. The general plan is, when ten repetitions have been reached, to increase the weight of the bar-bell by 5 lbs. and begin with three, increasing to ten repetitions, dropping back to three repetitions with an additional 5 lbs., and so on. But Exercises 1, 6, 8 and 9 call for extra and individual poundage as against the poundage used in the other exercises. The pupil will soon learn how to adjust the increase, but must remember always to keep the poundage well within his powers.

These exercises, with the following dumb-bell exercises, should not take more than one hour and should not be performed more than four times per week.

DUMB-BELL COURSE

EXERCISE No. 10

Standing erect with dumb-bells held by the sides, backs of hands outward, raise dumb-bells with straight arms in line with shoulders, lower and repeat (Fig. 16). Three repetitions, increasing to ten. Principal muscles employed: Deltoids.

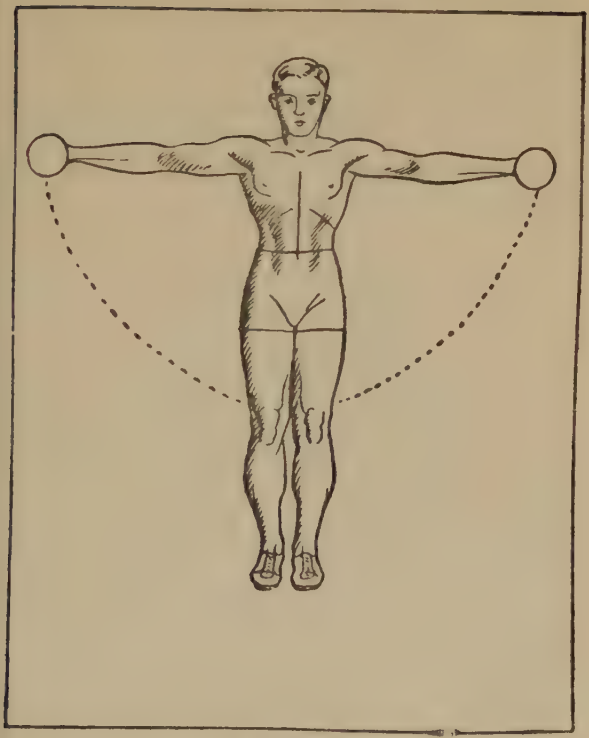


FIG. 16

EXERCISE No. 11

Position as in Exercise 10. Pull in bells to shoulders, then alternately raise to full stretch of arms above head. Three repetitions, increasing to ten. Principal muscles employed: Deltoids and triceps.

EXERCISE No. 12

Stand erect, dumb-bells on floor at the side of the feet. With knees bent, grasp a dumb-bell in each hand (Fig. 17 A), and in one continuous movement swing to above head at full stretch of the arms (Fig. 17 B), following the movement with the eyes. Hold for a moment, lower with straight arms to the floor, resisting the pull of the weight. Leaving bells on floor, resume the erect position. Repeat three times, increasing to ten. Principal muscles employed: Triceps, back, shoulders and thighs.

Here again with the dumb-bell course the poundage should be increased in accordance with the pupil's gain in strength.

For those aiming particularly at thigh development and strength, the best exercise is to perform

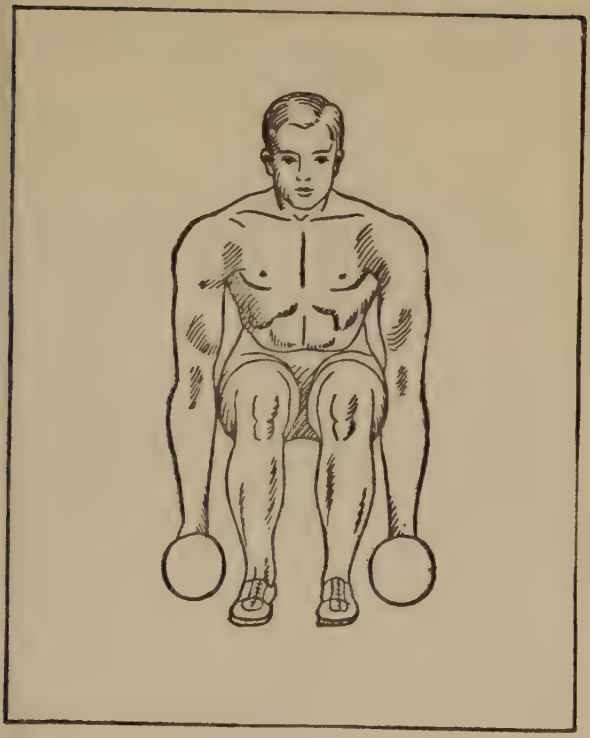


FIG. 17A

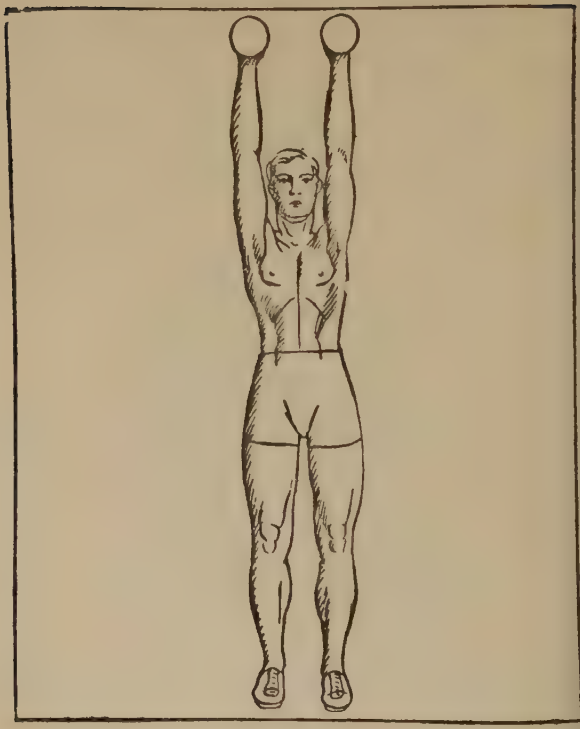


FIG. 17B

the squat, flat footed, with the bar-bell on the shoulders. The weight of the bar-bell and number of repetitions should be regulated according to the strength of the pupil, but the repetitions should not exceed fifteen.

The foregoing are a few only of the many exercises connected with weight-lifting practice, but they have been specially chosen with a view to the development of strength, muscle, and speed.

At this point we must reluctantly take leave of our readers, the necessary limit of space prescribed for this manual not permitting any further elaboration of a congenial theme. None the less, it is felt that the diligent aspirant to physical betterment, irrespective of age, should be able to find within these pages valuable guidance based upon extended professional experience of the student's needs. Failing personal contact, the writers cannot do other than rely upon the individual student's common sense not to tackle tasks beyond his actual or potential physical resources. The comprehensive series of exercises and movements explained in these pages has been framed with an eye to the respective requirements of both young and elderly, not to say old, among prospective patrons. At the same time,

it cannot be too strongly urged that the more mature physical culturist should not let himself be "psychologized" by the calendar, in the sense of eschewing certain exercises through fear lest he should be too old to attempt them. No man knows what he can do until he tries, and we are fairly confident that the majority of even our older patrons, provided they faithfully perform these exercises from the very beginning, and in their proper sequence, will find that there are comparatively very few of the series as a whole beyond their competence. On the other hand, it would have been an affront to the younger generation to restrict our course to comparatively elementary exercises calling for very little expenditure of energy, on the gratuitous assumption that few if any among that generation are eager to develop more than average strength and fitness. Our own professional experience points in an entirely different direction, and has imbued us with the belief that a very large proportion of the students of these pages will not be content to stop at the preparatory exercises, but will in due season undertake the advanced course for the attainment of full development and great strength.

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